



Progression of Curriculum and Skills Map (2021-2022)

Subject area: Science

Curriculum Leader: Katie Russell

Enquiry Types

To ensure complete coverage of the working scientifically skills and that children gain experience in all five types of scientific enquiry, there are a variety of big questions suggested for each topic. These can be adapted to suit, as long as the same enquiry coverage is achieved. In addition, there is a problem solving task linked to a famous scientist for each year group. Links to scientists are identified in yellow.

| | | | | | |
|---|------------------------|---------------------------------------|--------------------------------|---|---|
| Comparative and fair testing CT FT - fair testing KS2 only | Research (R) | Observations over time (OT) | Pattern seeking (PS) | Identifying, grouping and classifying (IGC) | Problem solving (PSO) An additional enquiry type, as suggested by the PSTT |
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Enquiry Skills

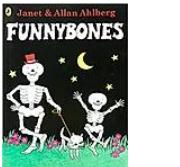
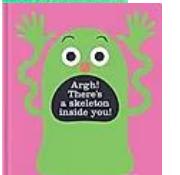
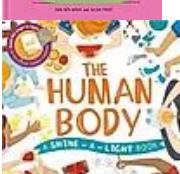
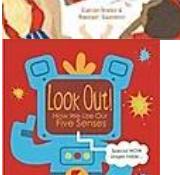
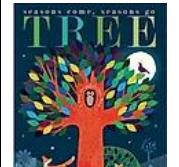
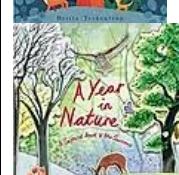
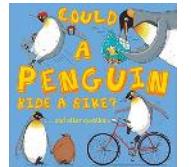
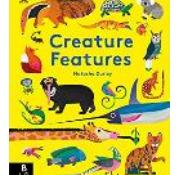
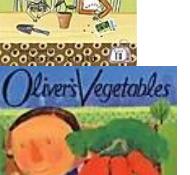
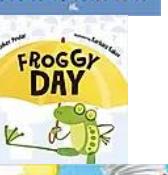
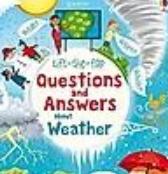
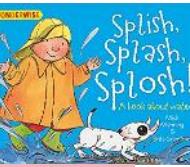
There are 7 enquiry skills. Each of the 7 enquiry skills must be covered as part of the science content coverage. Use of the suggested big questions, should ensure full coverage of these skills. It is not expected that every skill will be covered in every enquiry. Instead, teachers should identify skill/s they wish to assess within that enquiry. These should be identified in the planning. Any expectations for key equipment to be used has also been identified.

| | | | | | | |
|---|---|---|---|---|---|--|
| Asking questions  | Making predictions  | Setting up tests  | Observing and measuring  | Recording data  | Interpreting and communicating results  | Evaluating (KS2 only)  |
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The progression of these skills for each key stage is outlined in the PLAN Progression in Working Scientifically document (on the website). A more detailed breakdown of expectations for each year group is provided to teachers. The progression of knowledge for each content area is broken down in the PLAN Progression in Knowledge Document. Further detailed breakdown of each topic is provided in the PLAN knowledge matrices for each year group, including the key learning required for each year group.

| | AUTUMN 1 | AUTUMN 2 | SPRING 1 | SPRING 2 | SUMMER 1 | SUMMER 2 |
|--------|--|--|---|--|--|--|
| YEAR 1 | <p>All about me Animals, inc humans</p> <p>Is our sense of smell better when we can't see? (CT)</p> <p>Do all animals have the same senses as humans? (R)</p> <p>How does my height change over the year? (OT)</p> | <p>Changing colours Seasonal changes</p> <p>Bertie's diary: what time does it get dark? (OT)</p> <p>Do trees with bigger leaves lose their leaves first in autumn? (PS)</p> <p>How does an oak tree change over the year? (OT)</p> | <p>Amazing animals Animals, inc humans</p> <p>How can we organise all the zoo animals? (IGC)</p> <p>How are the animals in Australia different from the ones in Britain? (R)</p> <p>Do all animals with wings fly? (PS)</p> | <p>Plant detectives Plants</p> <p>Which tree has the biggest leaves? (CT)</p> <p>What are the most common British plants and where can we find them? (R)</p> <p>How can we sort the leaves we have collected on our walk? (IGC)</p> <p>Can you identify the parts of plants that we eat? (IGC)</p> | <p>Wonderful weather Seasonal changes</p> <p>Does the wind always blow the same way? (PS)</p> <p>How does the colour of a UV bead change over the day? (OT)</p> <p>Are there plants that flower in every season? (R)</p> | <p>Mysterious Materials Everyday materials</p> <p>Which materials are the most flexible (or absorbent)? (CT)</p> <p>Which materials will float and sink? (IGC) Brunel - boats</p> <p>How can I make a material waterproof? (PSO) Charles Macintosh</p> |

| Key equipment and resources to be used | Non standard measuring tools. | Simple ID keys | Sorting hoops | Simple ID keys | Simple ID keys Simple measuring equipment | Sorting hoops Simple measuring equipment |
|---|---|---|---|---|---|---|
| YEAR 1 SUGGESTED TEXTS TO SUPPORT TEACHING |     |     |     |     |     |     |

| YEAR 2 | Marvellous Microhabitats Living things & their habitats | Survival Animals, inc humans | Extreme environments Living things & their habitats | Changing and growing Animals, inc humans | Grow your own Plants | Incredible inventions Uses of everyday materials |
|--------|--|--|---|--|--|--|
| | <p>Which habitat do worms/ woodlice prefer - where can we find the most worms/ woodlice? (PS)</p> <p>How does the school pond change over the year? (OT)</p> <p>What wildlife do we have in our school pond? (IGC)</p> <p>How would you group things to show which are living, dead, or have never been alive? (IGC)</p> | <p>Which age group of children wash their hands the most in a day? (PS)</p> <p>What does an astronaut need to survive in space? (R)</p> <p>What do you need to do to look after a pet dog/cat/lizard and keep it healthy? (R)</p> <p>Do bananas make us run faster? (CT)</p> | <p>Would a meerkat prefer to live in the Arctic or a desert? Why? (R)</p> <p>How would you group these plants and animals based on what habitat you find them in? (IGC)</p> <p>How does a cactus survive in the desert with no water? (R)</p> | <p>How does a butterfly/ tadpole change over time? (OT)</p> <p>Which offspring belongs to which animal? (IGC)</p> <p>Do year 2 children have bigger handspans than y1 children? (PS)</p> | <p>What happens to my bean after I have planted it? (OT)</p> <p>Do cress seeds grow quicker inside or out? (CT)</p> <p>How can we identify the trees we observed on our tree hunt? (IGC)</p> <p>Do bigger seeds always grow into bigger plants? (PS)</p> | <p>Which material would be best for the roof of the three little pigs' houses? (CT)</p> <p>Which materials are shiny and which are dull (IGC)</p> <p>How can I find out which material would make a good tyre? (PSO) John Dunlop</p> |

| Key equipment & resources to be used | Simple ID keys | Simple timers Simple measuring equipment | Simple ID keys | Opportunity to observe an animal life cycle first hand. | Simple ID keys Hand lenses and microscopes | Simple measuring equipment |
|---|----------------|---|----------------|---|---|----------------------------|
| YEAR 2 SUGGESTED TEXTS TO SUPPORT TEACHING  | | | | | | |

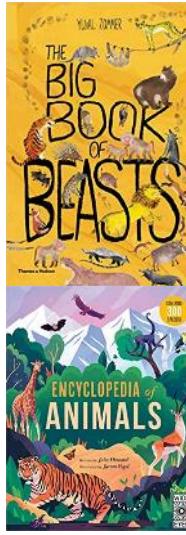
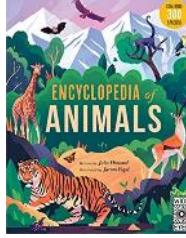
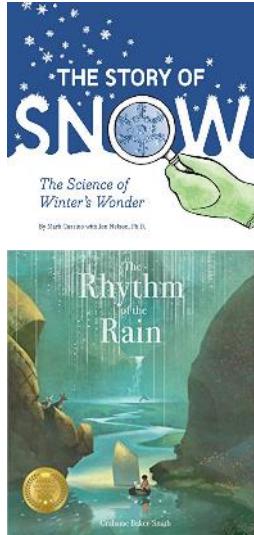
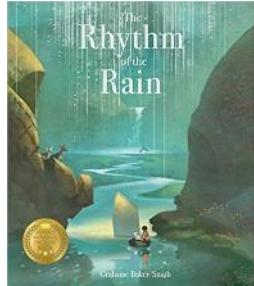
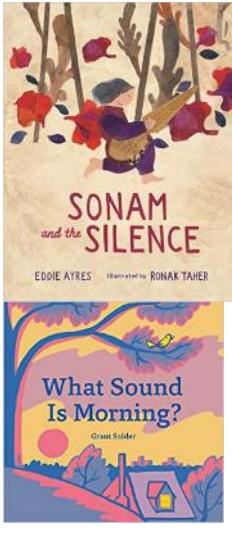
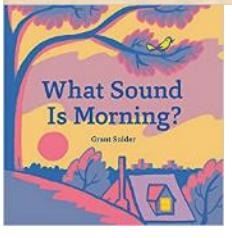
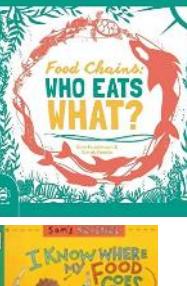
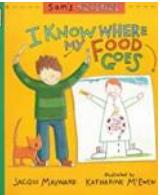
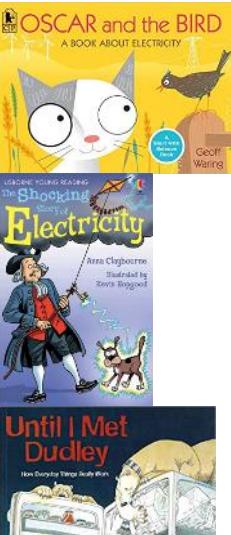
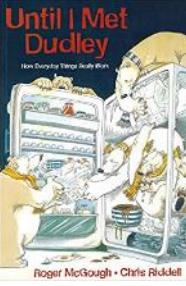
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| YEAR 3 | <p>Sensational skeletons Animals, inc humans</p> <p>How does the skull circumference of a girl compare with that of a boy? (CT)</p> <p>Do male humans have larger skulls than female humans? (PS)</p> <p>How do the skeletons of different animals compare? (IGC)</p> | <p>Rocks and fossils Rocks</p> <p>Can you use the ID key to name each of the rocks in your collection? (IGC)</p> <p>Is there a pattern in where we find volcanoes on planet Earth? (PS)</p> <p>Which soil grows the tallest grass? (CT)</p> <p>Who was Mary Anning and what did she discover? (R)</p> | <p>Marvellous magnets Forces and magnets</p> <p>Which materials are magnetic? (IGC)</p> <p>Which magnet is strongest? (CT)</p> <p>Which surface makes the car travel fastest? (CT)</p> <p>How can I make a road that is smooth, hard and won't get muddy? (PSO - John Macadam)</p> | <p>Nutrition Animals, inc humans</p> <p>How can we group the food we eat? (IGC)</p> <p>Which different types of vitamins keep us healthy and which foods can we find them in? (R)</p> <p>How can we group animals according to the types of food they eat? (IGC)</p> | <p>Brilliant bees Plants</p> <p>What happens to celery when it is left in a glass of coloured water? (OT)</p> <p>Which conditions help seeds germinate faster? (CT)</p> <p>What are all the different ways that seeds disperse? (R)</p> <p>What colour flowers do pollinating insects prefer? (PS)</p> | <p>Light and Dark Light</p> <p>When is our classroom darkest? (OT)</p> <p>How would organise these light sources into natural and artificial sources? (IGC)</p> <p>How does the Sun make light? (R)</p> <p>How does the distance between the shadow puppet and the screen affect the size of the shadow? (CFT)</p> |
|---------------|--|--|---|---|---|---|

| Key equipment and resources to be used | Measuring tapes and rulers Skeleton | Variety of different rocks. Magnifying glasses. Rulers and measuring tapes | Data loggers (friction ramp) Magnets | Simple classification keys | Identification keys microscopes | Data loggers (light sensors) Torches |
|---|--|--|---|----------------------------|------------------------------------|---|
| YEAR 3 TEXTS TO SUPPORT TEACHING | | | | | | |

| | | | | | | |
|--------|---|---|---|---|---|---|
| YEAR 4 | Similarities and differences Living things and their habitats | Solids, liquids and gases Solids, liquids and gases | Hear the vibrations Sound | The journey of food Animals, including humans. | Electric Energy Electricity | Environmental Change Living things and their habitats |
| | Can we use the classification keys to identify all the animals that we caught pond dipping? (IGC) | Is there a pattern in how long it takes different sized ice lollies to melt? (PS) | Do all animals have the same hearing range? (R) | What are the names for all the organs involved in the digestive system? (IGC) | Which metal is the best conductor of electricity? (CT) | Why are people cutting down the rainforests and what effect does that have? (R) |
| | How does the variety of invertebrates on the school field change over the year? (OT) | How does the level of water in a glass change when left on the windowsill? (OT) | How does the volume of a drum change as you move further away from it? (FT) | How can we organise teeth into groups? (IGC) | How does the thickness of a conducting material affect how bright the lamp is? (FT) | How has the use of insecticides affected bee population? (PS) |
| | Does the amount of light affect how many woodlice move around? (FT) | Can you group these materials and objects into solids, liquids, and gases? (IGC) | Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school? (PS) | Are foods that are high in energy always high in sugar? (PS) | How would you group these devices based on where the electricity comes from? (IGC) | How does the average temperature of the pond water change in each season? (CT) |

How can I
generate
electricity from
the wind?

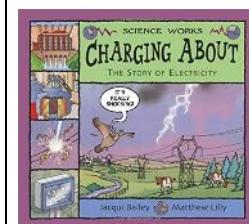
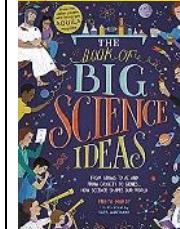
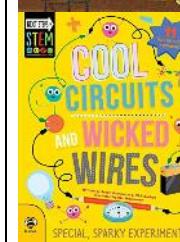
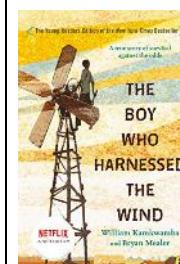
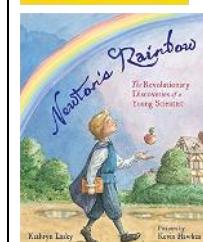
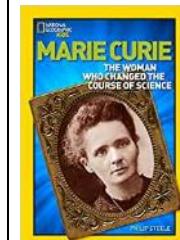
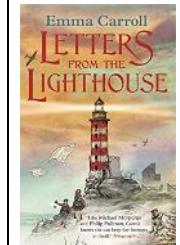
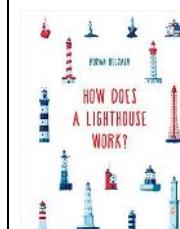
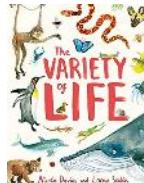
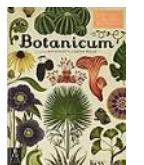
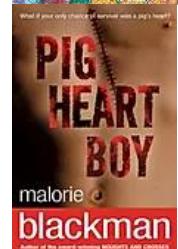
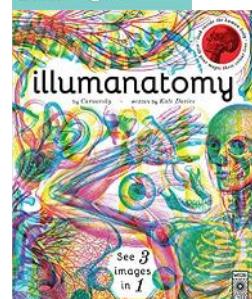
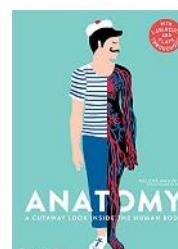
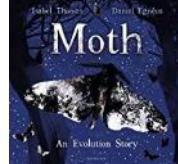
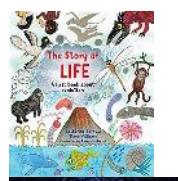
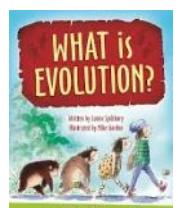
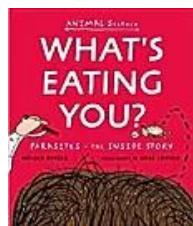
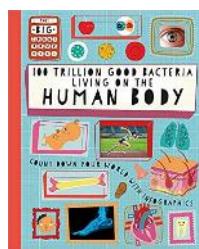
(PSO) Michael
Faraday

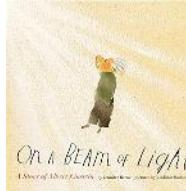
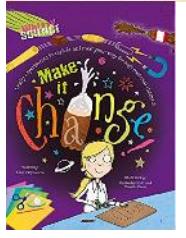
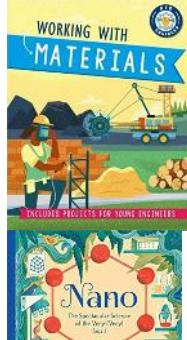
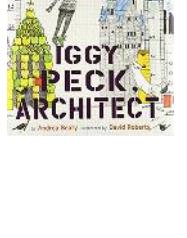
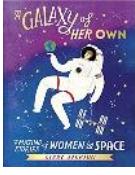
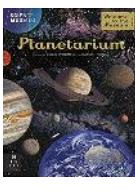
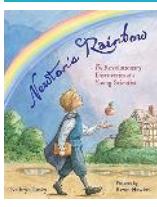
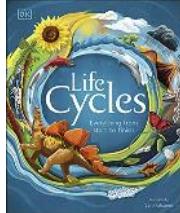
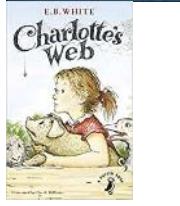
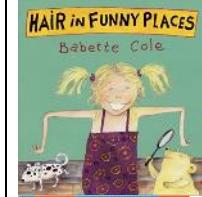
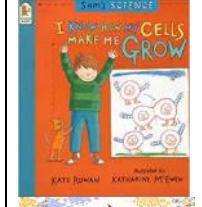
| Key equipment & resources to be used | Classification keys | Thermometers and data loggers (temp) Heating stands | Data loggers (sound sensors) | Human Torso Model | Circuit equipment | Thermometers Data loggers (temperature) |
|--|---|---|---|--|--|---|
| YEAR 4 SUGGESTED TEXTS TO SUPPORT TEACHING |   |   |   |    |    |      |
| YEAR 5/6 mixed class (this is based on what the | Microorganisms Living things and their habitats | Evolution Evolution and Inheritance Is there a pattern between | The Human Body Animals, including humans | Wonderful Wildlife Living things and their habitats | Rays of light Light Why | Circuits Electricity Does the temperature of a |

| | | | | | | |
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| <p>children in this mixed class have covered so far and what they still need to cover)</p> | <p>What do different types of microorganisms do? Are they always harmful? (R)</p> <p>What happens to a piece of bread when you leave it on the windowsill for two weeks? (OT)</p> <p>How have our ideas about medicine and disease changed over time? (R)</p> | <p>the size and shape of a bird's beak and the food it will eat? PS</p> <p>Compare the skeletons of apes, humans, and Neanderthals - how are they similar, and how are they different? IGC</p> <p>What happened when Charles Darwin visited the Galapagos islands? R</p> <p>Is there a pattern between the size of people's hands and the size of their feet? PS</p> | <p>Which organs of the body make up the circulatory system and where are they found? (IGO)</p> <p>How does the length of time we exercise for affect our heart rate? (FT)</p> <p>How can you change the period of a pendulum so it matches a pulse? (PSO)</p> <p>Scientist: Santario</p> | <p>Which is the most common invertebrate in our forest school area? (CT)</p> <p>How would you make a classification key for UK mammals? (IGC)</p> <p>Do all flowers have the same number of petals? PS</p> <p>Why are some animals nocturnal? Are all nocturnal</p> | <p>do some people need to wear glasses to see clearly? (R)</p> <p>How does my shadow change over the day? (OT)</p> <p>Is there a pattern to how bright it is in school over the day? And, if there is a pattern, is it the same in every classroom? PS</p> <p>Can you identify all the colours of light that make white light when mixed together?</p> | <p>lightbulb go up the longer it is on? (PS)</p> <p>How has our understanding of electricity changed over time? (R)</p> <p>How would you group electrical components and appliances based on what electricity makes them do? (IGC)</p> <p>Which type of fruit makes the best fruity battery? (CT)</p> |
|--|---|--|--|---|--|---|

| | | | | | | |
|---|---------------------|------------------|--|--|---|--|
| | | | | <p>animals mammals? (R)</p> <p>How can we find out more about the wildlife in Devon and Cornwall? (PSO)</p> <p>Scientists: Jane Goodall & David Attenborough</p> <p>Eden Project</p> <p>(Tim Smit)</p> | <p>What colours do you get if you mix different colours of light together? (IGC)</p> <p>How can we find out about things we cannot see? (PSO)</p> <p>Scientist: Marie Curie</p> | |
| Key equipment & resources to be used | Classification keys | Skeleton Fossils | Data loggers (pulse meters) Human torso model | Classification keys Heart dissection (optional) | Data loggers Torches Prisms | Circuits (inc symbols) Data loggers (temperature) |

YEAR 5/6 TEXTS TO SUPPORT TEACHING



| | | | | | | |
|---|---|--|---|---|---|--|
| | | | | America win the space race? (R) | | |
| Key equipment & resources to be used | Filtering, sieving, evaporation equipment | Precise measuring equipment | Planet Models | Force meters Precise measuring equipment | First hand observation of animal lifecycle: brine shrimp | Measuring tapes. Timers |
| YEAR 5 SUGGESTED TEXTS TO SUPPORT TEACHING |     |    |     |   |   |    |

